

SCOPE OF CLAIMS

1. An intermediate device adapted to be provided between a first information processing device for providing an information processing service through a network and a second information processing device for receiving said information processing service, for providing an intermediate
5 service additional to said information processing service, comprising:

state information acquiring means for acquiring state information required to maintain the state of a session established between said first information processing device and said second information processing device for said information processing service, from said first information
10 processing device or said second information processing device;

intermediate service managing means for generating, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information
15 processing device, and transferring the data to which said intermediate service is applied; and

transfer control means for maintaining the state of said existing session established between said first information processing device and said second information processing device, between itself and said second
20 information processing device, establishing a new session between itself and said first information processing device, and transferring said data using said existing session and said new session, according to said transfer rules.

2. An intermediate device according to claim 1, wherein said state information acquiring means has session monitoring means for acquiring

session information inherent in said session sent and received between said first information processing device and said second information processing device, as part of said state information.

3. An intermediate device according to claim 1, wherein said state information acquiring means has information collecting means for acquiring service inherent information inherent in said information processing service as part of said state information by inquiring at said first information processing device or said second information processing device.

4. An intermediate device according to claim 3, wherein said state information acquiring means inquires at said first information processing device or said second information processing device about accessing object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and extracts a regularity common to a plurality of obtained items of said accessing object identifying information, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects.

5. An intermediate device according to claim 1, wherein said transfer control means has an operation mode for transferring data of the existing session between said first information processing device and said second information processing device without the data being subjected to said intermediate service, and an operation mode for establishing sessions

between the intermediate device and both said second information processing device and said first information processing device when a new session of said information processing service is requested to be established by said second information processing device, applying said intermediate
10 service to the data of said information processing service using said sessions, and transferring said data.

6. An intermediate device according to claim 1, wherein said state information acquiring means has cancellation control means for issuing a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing
5 device, and acquires said state information in a process of reestablishing the session according to said command.

7. An intermediate device according to claim 1, wherein said intermediate service has contents registered in advance by the operator.

8. An intermediate device according to claim 7, wherein said information processing service comprises a service for allowing said second information processing device to access a resource on said first information processing device, and said intermediate service comprises a service for
5 changing the access from said second information processing device to the resource on said first information processing device to convert an access destination.

9. An intermediate device according to claim 7, wherein said

information processing service comprises a service for allowing said second information processing device to access a WEB page on said first information processing device, and said intermediate service comprises a service for integrating said information processing services provided by a plurality of said first information processing devices and providing the integrated information processing services to said second information processing device.

10. An intermediate device according to claim 1, wherein when said intermediate service ends being provided, said transfer control means:

when requested to newly establish a session of said information processing service from said second information processing device, transfers the data between said second information processing device and said first information processing device, thereby establishing a session directly between said first information processing device and said second information processing device while exempting the data from said intermediate service; and

with respect to said information processing service which has already been provided, continuously transfers the data to which said intermediate service is applied using a session between itself and said first information processing device and a session between itself and said second information processing device, until said second information processing device ends employing said information processing service.

11. A service providing method of providing an intermediate service additional to an information processing service with an intermediate device

which is provided between a first information processing device for providing said information processing service through a network and a second
5 information processing device for receiving said information processing service, comprising:

the first step of controlling said intermediate device provided between said first information processing device and said second information processing device to acquire state information required to maintain the state
10 of a session established between said first information processing device and said second information processing device for said information processing service, from said first information processing device or said second information processing device;

the second step of controlling said intermediate device to generate,
15 based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data to which said intermediate service is applied; and

20 the third step of controlling said intermediate device to maintain the state of said existing session established between said first information processing device and said second information processing device, between said intermediate device and said second information processing device, establish a new session between said intermediate device and said first
25 information processing device, and transfer said data using said existing session and said new session, according to said transfer rules.

12. A service providing method according to claim 11, wherein in said

first step, said intermediate device acquires session information inherent in said session sent and received between said first information processing device and said second information processing device, as part of said state
5 information.

13. A service providing method according to claim 11, wherein in said first step, said intermediate device acquires service inherent information inherent in said information processing service as part of said state information by inquiring at said first information processing device or said
5 second information processing device.

14. A service providing method according to claim 13, wherein said intermediate device inquires at said first information processing device or said second information processing device about accessing object identifying information assigned to identify respective accessing objects on said first
5 information processing device, with respect to a plurality of said accessing objects, and extracts a regularity common to a plurality of obtained items of said accessing object identifying information, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects.

15. A service providing method according to claim 11, wherein in said first step, when all said state information which is required cannot be acquired, said intermediate device transfers data of the existing session between said first information processing device and said second information
5 processing device without the data being subjected to said intermediate

service, and when a new session of said information processing service is requested to be established by said second information processing device, said intermediate device establishes sessions between the intermediate device and both said second information processing device and said first
10 information processing device, applies said intermediate service to the data of said information processing service using said sessions, and transfers said data.

16. A service providing method according to claim 11, wherein in said first step, said intermediate device issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing device, and acquires said
5 state information in a process of reestablishing the session.

17. A service providing method according to claim 11, wherein said intermediate service has contents registered in advance in said intermediate device by the operator.

18. A service providing method according to claim 17, wherein said information processing service comprises a service for allowing said second information processing device to access a resource on said first information processing device, and said intermediate service comprises a service for
5 changing the access from said second information processing device to the resource on said first information processing device to convert an access destination.

19. A service providing method according to claim 17, wherein said information processing service comprises a service for allowing said second information processing device to access a WEB page on said first information processing device, and said intermediate service comprises a service for integrating said information processing services provided by a plurality of said first information processing devices and providing the integrated information processing services to said second information processing device.

20. A service providing method according to claim 11, further comprising:

the fourth step of, when said intermediate service ends being provided and when requested to newly establish a session of said information processing service from said second information processing device, transferring the data between said second information processing device and said first information processing device, thereby establishing a session directly between said first information processing device and said second information processing device while exempting the data from said intermediate service; and

the fifth step of, with respect to said information processing service which has already been provided, continuously transferring the data to which said intermediate service is applied using a session between said intermediate device and said first information processing device and a session between said intermediate device and said second information processing device, until said second information processing device ends employing said information processing service.

21. A service providing program for providing an intermediate service additional to an information processing service by being executed by a computer which is provided between a first information processing device for providing said information processing service through a network and a
5 second information processing device for receiving said information processing service, said program enabling said computer to perform:

 a first process of controlling state information acquiring means to acquire state information required to maintain the state of a session established between said first information processing device and said
10 second information processing device for said information processing service, from said first information processing device or said second information processing device;

 a second process of controlling intermediate service managing means to generate, based on said state information, transfer rules for applying said
15 intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transfer the data to which said intermediate service is applied; and

 a third process of controlling transfer control means to maintain the
20 state of said existing session established between said first information processing device and said second information processing device, between itself and said second information processing device, establish a new session between itself and said first information processing device, and transfer said data using said existing session and said new session,
25 according to said transfer rules.

22. A service providing program according to claim 21, wherein in said first process, session information inherent in said session sent and received between said first information processing device and said second information processing device is acquired as part of said state information.

23. A service providing program according to claim 21, wherein in said first process, service inherent information inherent in said information processing service is acquired as part of said state information by inquiring at said first information processing device or said second information
5 processing device.

24. A service providing program according to claim 23, wherein said first information processing device or said second information processing device are inquired at about accessing object identifying information assigned to identify respective accessing objects on said first information
5 processing device, with respect to a plurality of said accessing objects, and a regularity common to a plurality of obtained items of said accessing object identifying information are extracted, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects.

25. A service providing program according to claim 21, wherein in said first process, when all said state information which is required cannot be acquired, said transfer control means transfers data of the existing session between said first information processing device and said second information

5 processing device without the data being subjected to said intermediate
service, and when a new session of said information processing service is
requested to be established by said second information processing device,
said transfer control means establishes sessions between the transfer
control means and both said second information processing device and said
10 first information processing device, applies said intermediate service to the
data of said information processing service using said sessions, and
transfers said data.

26. A service providing program according to claim 21, wherein in said
first process, cancellation control means issues a command for temporarily
nullifying and reestablishing said session to said first information processing
device and said second information processing device, and said state
5 information acquiring means acquires said state information in a process of
reestablishing the session.

27. A service providing program according to claim 21, wherein said
intermediate service has contents registered in advance in said intermediate
device by the operator.

28. A service providing program according to claim 27, wherein said
information processing service comprises a service for allowing said second
information processing device to access a resource on said first information
processing device, and said intermediate service comprises a service for
5 changing the access from said second information processing device to the
resource on said first information processing device to convert an access

destination.

29. A service providing program according to claim 27, wherein said information processing service comprises a service for allowing said second information processing device to access a WEB page on said first information processing device, and said intermediate service comprises a
5 service for integrating said information processing services provided by a plurality of said first information processing devices and providing the integrated information processing services to said second information processing device.

30. A service providing program according to claim 21, further comprising:

a fourth process of, when said intermediate service ends being provided and when requested to newly establish a session of said
5 information processing service from said second information processing device, controlling said transfer control means to transfer the data between said second information processing device and said first information processing device, thereby establishing a session directly between said first information processing device and said second information processing
10 device while exempting the data from said intermediate service; and
a fifth process of, with respect to said information processing service which has already been provided, controlling said transfer control means to continuously transfer the data to which said intermediate service is applied using a session between itself and said first information processing device
15 and a session between itself and said second information processing device,

until said second information processing device ends employing said information processing service.

31. A service providing program for being executed by a computer to provide an intermediate service additional to an information processing service between a first information processing device for providing said information processing service through a network and a second information processing device for receiving said information processing service, said
5 program enabling said computer to perform:

a first process of acquiring state information required to maintain the state of a session established between said first information processing device and said second information processing device for said information processing service, from said first information processing device or said
10 second information processing device;

a second process of generating, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first
15 information processing device and said second information processing device, and transferring the data to which said intermediate service is applied; and

a third process of maintaining the state of said existing session established between said first information processing device and said
20 second information processing device, between itself and said second information processing device, establishing a new session between itself and said first information processing device, and transferring said data using said existing session and said new session, according to said transfer rules.